

lovE-37

maadqgiftnsvtlspvegsrtggtlprrafrrrscdrchaqkikcignkevtgrapcqrccragl
rcvysercpkrklrqsraadlvsadpdpclhmssppvpssqslpldvsseshssntsrqfldppdsy
dswtsigtdeaiddtcwglsgcdggfscqleptlpdlpspfestvekaplppvssdiaraasaq
relfddlsavsqeleeillavtvewpkqeiwthpigmffnasrrlltvlrqqaqadchqgtldec
lrtnklnftavhcyilnvriltaiselllsqirrtqnshmsplegsrsqsprrddtssssghscvd
tipffsenlpigelfsyvdpplthalfsacttlhvgvqllreyeitlgihsaaggiaasismsgepg
ediartgatnsarceeqpttpaarvlfmflsdegafqeaksagsrgrtiaalrrcyedifslark
hkhgmlrdlnnipp (SEQ ID NO:61)

lovE-38

maadqgiftnsvtlspvegsrtggtlprrafrrrscdrcharkikctgnkevtgrapcqrccqagl
rcvysercpkrklrqsraadlvsadpdpclhmssppvpssqslpldvsseshssntsrqfldppdsy
dswtsigtdeaiddtcwglsgcdggfscqleptlpdlpspfestvekaplppvssdiaraasaq
relfddlsavsqeleeillavtvewpkqeiwthpigmffnasrrlltvlrqqaqadchqgtldec
lrtnklnftavhcyilnvriltaiselllsqirrtqnshmsplegsrsqslsrrddtssssghssvd
tipffsenlpidelfsyvdpplthalfsacttlhvgvqllreneitlgvhsaaggiaasismsgelg
edivrtgatnsarceeqpttpaarvlfmflsdegafqeaksagsrsrtiaalrrcyedifslark
hkhgmlrdlnnipp (SEQ ID NO:62)

lovE-39

maadqgiftnsvtlspvegsrtggtlprrafrrrscdrchaqkikctgnkevngrapcqrccqagl
rcvysercpkrklrqsraadlvsadpdpclhmssppvpssqslpldiseshssntsrqfldppdsy
dswtsigideaidtdcwglsgcdggfscqleptlpdlpspfestvekaplppissdiaraasaq
relfddlsavsqeleeillavtvewpkqeiwthpigmffnasrrlltvlrqqaqadchqgtldec
lrtnklnftavhcyilnvrilaaiselllsqirrtqnshmsplegsrsqsprrddtssssghssvd
tipffsenlpigelfsyvdpplthalfsacttlhvgvqllreneitlgvhsaaggiaasismsgepg
ediartgatnsarceeqpttpaarvlfmflsdegafqeaksagsrgrtiaalrrcyedifslark
hkhgmlrdlnnipp (SEQ ID NO:63)

lovE-40

maaeqgiftnsvtlspvegsrtggtlprrafrrrscdrcharkikctgnkevtgrapcqrccqagl
rcvysercpkrklrqsraadlisadpdpclhmssppvpssqslplevsseshssntsrqfldppdsy
dswtsigtdekaiddtcwglsgcdggfscqleptlpdlpspfestvekaplppvssditraasaq
relfddlsavsqeleeillavtvewpkqeiwthpigmffnasrrlltvlrqqaqadchqgtldec
lrtnklnftavhcyildvriltaiselllsqirrtqnshmsplegsrsqsprrddtssssghssvd
tipffsenlpigelfsyvdpplrhalfsacttlhvgvqllreieitlgvhsargiaasismsgepg
ediartgatnsarceeqpttpaarvlfmflsdegdfqeaksagsrgrtiaalrrcyedifslark
hkhgmlrdlnnipp (SEQ ID NO:64)

lovE-41

maadqgiftnsvtlspvegsrtggtlprrafrrrscdrchaqkikctgnkevtgrapcqrccqagl
rcvysercpkrklrqsraadlvsadpdpclhmssppvpssqslpldvsseshssntsrqfldppdsy
nwlwtsigtdeaiddtcwglsgcdggfscqleptlpdlpspfestvekaplppvssdiaraasaq
relfddlsavsqeleeillavtvewpkqeiwthpigmffnasrrlltvlrqqaqadchqgtldec
lrtnklnftavhcyilnvriltaiselllsqirrtqnshmsplegsrsqspsgddtssssghssvd
tipffsenlpigelfsyvdpplthalfsacttlhvgvqllreneitlgvhsaaggiaasismsgepg
ediartgatnsarceeqpttpaarvlfmflsdegafqegksagsrgrtiaalrrcyedifslark
hkhgmlrdlnnipp (SEQ ID NO:65)

Table 6: DNA Sequences of Variants of the *lovE* Gene***lovE-1***

ATGGCTGCAGATCAAGGTATATTACGAACTCGGTCACTCTCTCGCCAGTGGAGGGTTACGCAC
 CGGTGGAACATTACCCCGCCGTGCATTCCGACGCTCTTGTGATCGGTGTCATGCACAAAAGATCA
 AATGTACTGGAAATAAGGAGGTTACTGGCCGTGCTCCCTGTCAGCGTTGCCAGCAGGCTGGACTT
 CGATGCGTCTACAGTGAGCGATGCCCCAAGCGCAAGCTACGCCAATCCAGGGCAGCGGATCTCGT
 CTCTGCTGACCCAGATCCCTGCTTGACATGTCTCGCCTCCAGTGCCCTCACAGAGCTTGCCGC
 TAGACGTATCCGAGTCGCATTCTCAAATACCTCCCGGCAGTTTCTTGATCCACCGGACAGCTAC
 GACTGGTTCGTGGACCTCGATTGGCACTGACGAGGCTATTGACACTGACTGCTGGGGGCTGTCCCA
 ATGTGATGGAGGCTTCAGCTGTGAGTTAGAGCCAACGCTGCCGGATCTACCTTCGCCCTTCGAGT
 CTACGGTTGAAAAAGCTCCGTTGCCACCGGTATCGAGCGACATTGCTCGTGCGGCCAGTGCGCAA
 CGAGAGCTTTTCGATGACCTGTTCGGCGGTGTTCGAGGAACTGGAAGAGATCCTTCTGGCCGTGAC
 GGTAGAATGGCCGAAGCAGGAAATCTGGACCCATCCCATCGGAATGTTTTCAATGCGTCACGAC
 GGCTTCTTACTGTCTGCGCCAACAAGCGCAGGCCGACTGCCGTCAAGGCACACTAGACGAATGT
 TTACGGACCAAGAACCTCTTTACGGCAGTACACTGTTACATATTGAATGTGCGGATTTTGACCGC
 CATATCGGAGTTGCTCCTGTGCAAAATTAGGCGGACCCAGAACAGCCATATGAGCCCACTGGAAG
 GGAGTCGATCCCGAGTCGCCGAGCAGAGACGACACCAGCAGCAGCAGCGGCCACAGCAGTGTGAC
 ACCATACCCTTCTTTAGCGAGAACCTCCCTATTGGTGAGCTGTTCCCTATGTTGACCCCTGAC
 ACACGCCCTATTCTCGGCTTGCACTACGTTACATGTTGGGGTACAATTGCTGCGTGAGAATGAGA
 TTACTCTGGGAGTACACTCCGCCCCAGGGCATTGCAGCTTCCATCAGCATGAGCGGGGAACCAGGC
 GAGGATATAGCCAGGACAGGGGCGACCAATTCGCAAGATGCGAGGAGCAGCCGACCACTCCAGC
 GGCTCGGGTTTTGTTTCATGTTCTTGAGTGATGAAGGGGCTTTCAGGAGGCAAAGTCTGCTGGTT
 CCCGAGGTGCAACCATCGCAGCACTGCGACGATGCTATGAGGATATCTTTCCCTCGCCCGCAA
 CACAAACATGGCATGCTCAGAGACCTCAACAATATTCTCCATGA (SEQ ID NO:66)

lovE-2

ATGGCTGCAGATCAAGGTATATTACGAACTCGGTCACTCTCTCGCCAGTGGAGGGTTACGCAC
 CGGTGGAACATTACCCCGCCGTGCATTCCGACGCTCTTGTGATCGGTGTCATGCACAAAAGATCA
 AATGTACTGGAAATAAGGAGGTTACTGGCCGTGCTCCCTGTCAGCGTTGCCAGCAGGCTGGACTT
 CGATGCGTCTACAGTGAGCGATGCCCCAAGCGCAAGCTACGCCAATCCAGGGCAGCGGATCTCGT
 CTCTGCTGACCCAGATCCCTGCTTGACATGTCTCGCCTCCAGTGCCCTCACAGAGCTTGCCGC
 TAGACGTATCCGAGTCGCATTCTCAAATACCTCCTGGCAATTTCTTGATCCACCGGACAGCTAC
 GACTGGTTGTGGACCTCGATTGGCACTGACGAGGCTATTGACACTGACTGCTGGGGGCTGTCCCA
 ATGTGATGGAGGCTTCAGCTGTGAGTTAGAGCCAACGCTGCCGGATCTACCTTCGCCCTTCGAGT
 CTACGGTTGAAAAAGCTCCGTTGCCACCGGTATCGAGCGACATTGCTCGTGCGGCCAGTGCGCAA
 CGAGAGCTTTTCGATGACCTGTTCGGCGGTGTTCGAGGAACTGGAAGAGATCCTTCTGGCCGTGAC
 GGTAGAGTGGCCGAAGCAGGAAATCTGGACCCATCCCATCGGAATGTTTTCAATGCGTCACGAC
 GGCTTCTTACTGTCTGCGCCAACAAGCGCAGGCCGACTGCCATCAAGGCACACTAGACGAATGT
 TTACGGACCAAGAACCTCTTTACGGCAGTACACTGTTACATATTGAATGTGCGGATTTTGACCGC
 CATATCGGAGTTGCTCCTGTGCAAAATTAGGCGGACCCAGAACAGCCATATGAGCCCACTGGAAG
 GGAGTCGATCCCGAGTCGCCGAGCAGAGACGACACCAGCAGCAGCAGCGGCCACGGCAGTGTGAC
 ACCATACCCTTCTTTAGCGAGAACCTCCCTATTGGTGAGCTGTTCTCCTATGTTGACCCCTGAC
 ACACGCCCTATTCTCGGCTTGCACTACGTTACATGTTGGGGTACAATTGCTGCGTGAGAATGAGA
 TTACTCTGGGAGTACACTCCGCCCCAGGGCATTGCAGCTTCCATCAGCATGAGCGGGGAACCAGGC
 GAGGATATAGCCAGGACAGGGGCGACCAATTCGCAAGATGCGAGGAGCAGCCGACCACTCCAGC
 GGCTCGGGTTTTGTTTCATGTTCTTGAGTGATGAAGGGGCTTTCAGGAGGCAAAGTCTGCTGGTT
 CCCGAGGTGCAACCATCGCAGCACTGCGACGATGCTATGAGGATATCTTTCCCTCGCCCGCAA
 CACAAACATGGCATGCTCAGAGACCTCAACAATATTCTCCATGA (SEQ ID NO:67)

lovE-3

ATGGCTGCAGATCAAGGTATATTACGAACTCGGTCACTCTCTCGCCAGTGGAGGGTTACGCGAC
 CGGTGGAACATTACCCCGCCGTGCATTCCGACGCTCTTGTGATCGGTGTCATGCACAAAAGATCA
 AATGTACTGGAAATAAGGAGGTTACTGGCCGTGCTCCCTGTCAGCGTTGCCAGCAGGCTGGACTT
 CGATGCGTCTACAGTGAGCGACGCCCCAAGCGCAAGCTACGCCAATCCAGGGTAGCGGATCTCGT
 CTCTGCTGACCCAGATCCCTGCTTGACATGTCTCGCCTCCAGTGCCCTCACAGAGCTTGCCGC
 TAGACGTATCCGAGTCGCATTCTCAAATACCTCCCGGCAATTTCTTGATCCACCGGACAGCTAC
 GACTGGTCGTGGATCTCGATTGGCACTGACGAGGCTATTGACACTGACTGCTGGGGGCTGTCCCA
 ATGTGATGGAGGCTTCAGCTGTGAGTTAGAGCCAACGCTGCCGGATCTACCTTCGCCCTTCGAGT
 CTACGGTTGAAAAAGCTCCGTTGCCACCGGTATCGAGCGACATTGCTCGTGCGGCCAGTGCGCAA
 CGAGAGCTTTTCGATGACCTGTGCGCGGTGTGCGAGGAACTGGAAGAGATCCTTCTGGCCGTGAC
 GGTAGAATGGCCGAAGCAGGAAATCTGGACCCATCCCATCGGAATGTTTTCAATGCGTCACGAC
 GGCTTCTTACTGTCTGCGCCAACAAGCGCAGGCCGACTGCCATCAAGGCACACTAGACGAATGT
 TTACGGACCAAGAACCTCTTTACGGCAGTACACTGTTACATATTGAATGTGCGGATTTTGACCGC
 CATATCGGAGTTGCTCCTGTGCGAAATTAGGCGGACCCAGAACAGCCATATGAGCCCACTGGAAG
 GGAGTCGATCCAGTCGCCGAGCAGAGACGACACCAGCAGCAGCAGCGGCCACAGCAGTGTGAC
 ACCATACCCTTCTTTAGCGAGAACCTCCCTATTGGTGAGCTGTTCTCTATGTTGACCCCTGAC
 ACACGCCCTATTCTCGGCTTGCACTACGTTACATGTTGGGGTACAATTGCTGCGTGAGAATGAGA
 TTACTCTGGGAGTACACTCCGCCCAGGGCATTGCAGCTTCCATCAGCATGAGCGGGGAACCAGGC
 GAGGATATAGCCAGGACAGGGGCGACCAATTCGCAAGATGCGAGGAGCAGCCGACCACTCCAGC
 GGCTCGGGTTTTGTTTATGTTCTTGAGTGATGAAGGGGCTTTCCAGGAGGCAAAGTCTGCTGGTT
 CCCGAGGTGCAACCATCGCAGCACTGCGACGATGCTATGAGGATATCTTTTCCCTCGCCCGCAA
 CACAAACATGGCATGCTCAGAGACCTCAACAATATTCCTCCATGA (SEQ ID NO:68)

lovE-4

ATGGCTGCAGATCAAGGTATATTACGAACTCGGTCACTCTCTCGCCAGTGGAGGGTTACGCGAC
 CGGTGGAACATTACCCCGCCGTGCATTCCGACGCTCTTGTGATCGGTGTCATGCACAAAAGATCA
 AATGTACTGGAAATAAGGAGGTTACTGGCCGTGCTCCCTGTCAGCGTTGCCAGCAGGCTGGACTT
 CGATGCGTCTACAGTGAGCGACGCCCCAAGCGCAAGCTACGCCAATCCAGGGCAGCGGATCTCGT
 CTCTGCTGACCCAGATCCCTGCTTGACATGTCTCGCCTCCAGTGCCCTCACAGAGCTTGCCGC
 TAGACGTATCCGAGTCGCATTCTCAAATACCTCCCGGCAATTTCTTGATCCACCGGACAGCTAC
 GACTGGTCGTGGACCTCGATTGGCACTGACGAGGCTATTGACACTGACTGCTGGGGGCTGTCCCA
 ATGTGATGGAGGCTTCAGCTGTGAGTTAGAGCCAACGCTGCCGGATCTACCTTCGCCCTTCGAGT
 CTACGGTTGAAAAAGCTCCGTTGCCACCGGTATCGAGCGACATTGCTCGTGCGGCCAGTGCGCAA
 CGAGAGCTTTTCGATGACCTGTGCGCGGTGTGCGAGGAACTGGAAGAGATCCTTCTGGCCGTGAC
 GGTAGAATGGCCGAAGCAGGAAATCTGGACCCATCCCATCGGAATGTTTTCAATGCGTCACGAC
 GGCTTCTTACTGTCTGCGCCAACAAGCGCAGGCCGACTGCCATCAAGGCACACTAGACGAATGT
 TTACGGACCAAGAACCTCTTTACGGCAGTACACTGTTACATATTGAATGTGCGGATTTTGACCGC
 CATATCGGAGTTGCTCCTGTGCGAAATTAGGCGGACCCAGAACAGCCATATGAGCCCACTGGAAG
 GGAGTCGATCCAGTCGCCGAGCAGAGACGACACCAGCAGCAGCAGCGGCCACAGCAGTGTGAC
 ACCATACCCTTCTTTAGCGAGAACCTCCCTATTGGTGAGCTGTTCTCTATGTTGACCCCTGAC
 ACACGCCCTATTCTCGGCTTGCACTACGTTACATGTTGGGGTACAATTGCTGCGTGAGAATGAGA
 TTACTCTGGGAGTACACTCCGCCCAGGGCATTGCAGCTTCCATCAGCATGAGCGGGGAACCAGGC
 GAGGATATAGCCAGGACAGGGGCGACCAATTCGCAAGATGCGAGGAGCAGCCGACCACTCCAGC
 GGCTCGGGTTTTGTTTATGTTCTTGAGTGATGAAGGGGCTTTCCAGGAGGCAAAGTCTGCTGGTT
 CCCGAGGTGCAACCATCGCAGCACTGCGACGATGCTATGAGGATATCTTTTCCCTCGCCCGCAA
 CACAAACATGGCATGCTCAGAGACCTCAACAATATTCCTCCATGA (SEQ ID NO:69)